

Amendments to the Claims

Please amend the claims without prejudice. The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1- (Original) A method for downhole spectroscopy processing comprising:

obtaining raw spectroscopy data using a downhole tool;
processing downhole the raw spectroscopy data using the downhole tool to obtain a downhole processed solution;
transmitting the downhole processed solution to a surface processing system; and
using the surface processing system to determine lithology information from the downhole processed solution

wherein processing the raw spectroscopy data comprises:

pre-processing downhole the raw spectroscopy data to obtain a net capture spectra; and
performing spectral stripping using time information and the net capture spectra to determine elemental yields.

2- (Original) The method of claim 1, wherein processing comprises time-stacking the raw spectroscopy data.

3- (Currently amended) The method of claim 1 ~~or claim 2~~, further comprising comparing the downhole processed solution with data obtained from another downhole tool.

4- (Currently amended) The method of ~~any of~~ claims 1-3, further comprising displaying the lithology information on a user interface.

5- (Currently amended) The method of ~~any of~~ claims 1-4, wherein processing the raw spectroscopy data further comprises:

determining dry weight elemental concentrations using the elemental yields;

determining a dry weight for at least one selected from the group consisting of clay, carbonate, quartz-feldspar-mica, pyrite, anhydride, siderite, salt, and coal using the dry weight elemental concentrations; and
computing a matrix property using the dry weight elemental concentrations.

6- (Original) A downhole tool for processing raw spectroscopy data, comprising:
at least one detector for detecting the raw spectroscopy data;
processing means for processing the raw spectroscopy data to produce a downhole processed solution; and
means for transmitting the downhole processed solution to a surface location, wherein the processing means comprises:
means for pre-processing the raw spectral data to obtain a net capture spectra;
means for performing spectral stripping using time information and the net capture spectra to determine elemental yields

7- (Original) The downhole tool of claim 6, wherein the processing means comprises means for determining elemental yields.

8- (Currently amended) The downhole tool of claim 6 ~~or claim 7~~, wherein the processing means comprises means for computing a matrix property.

9- (Currently amended) The downhole tool of ~~any of claims 6-8~~, wherein the processing means further comprises means for determining dry weight elemental concentrations using the elemental yields.

10- (Original) The downhole tool of claim 9, wherein the processing means further comprises:

means for determining a dry weight for at least one selected from the group consisting of clay, carbonate, quartz-feldspar-mica, pyrite, anhydride, siderite, salt, and coal using the dry weight elemental concentrations; and

means for computing a matrix property using the dry weight.

11- (Currently amended) The downhole tool of ~~any of claims 6-10~~, wherein the processing means comprises:

a digital signal processor (516);
a power supply (520) operatively connected to the digital signal processor (516);
a local memory (518) operatively connected to the digital signal processor (516); and
a processing interface (514) operatively connected to the digital signal processor (516).